

CLAIMS

What is claimed is:

A prosthesis comprising:

- (a) a generally tubular structure; and
- (b) a coating deposited on at least an area of a surface of said generally tubular structure; wherein said coating has a preselected geometrical pattern.

2. The prosthesis of Claim 1, wherein said surface of said generally tubular structure has a surface width and wherein said preselected geometrical pattern is a continuous stream having a selected stream width.

3. The prosthesis of Claim 2, wherein said continuous stream starts at a first selected position on said surface of said generally tubular structure and ends at a second selected position on said surface of said generally tubular structure.

4. The prosthesis of Claim 2, wherein said stream width is equal to said surface width.

5. The prosthesis of Claim 2, wherein said stream width is smaller than said surface width.

6. The prosthesis of Claim 2, wherein said stream width is larger than said surface width.

7. The prosthesis of Claim 2, wherein said continuous stream is in a straight line.

8. The prosthesis of Claim 2, wherein said continuous stream is applied in a curved or angular line.

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1 9. The prosthesis of Claim 1, wherein said preselected geometrical
2 pattern is an intermittant pattern along said surface of said generally tubular
3 structure.

1 10. The prosthesis of Claim 9, wherein said intermittant pattern starts at
2 a first selected position on said surface of said generally tubular structure and ends
3 at a second selected position on said surface of said generally tubular structure.

1 11. The prosthesis of Claim 9, wherein said intermittant pattern is in a
2 straight line.

1 12. The prosthesis of Claim 9, wherein said intermittant pattern is
2 formed in a curved or angular line.

1 13. The prosthesis of Claim 9, wherein said intermittant pattern
2 includes at least one bead having a selected bead diameter.

1 14. The prosthesis of Claim 1, wherein said generally tubular structure
2 includes a channel formed into the tubular structure and has a channel width, said
3 channel extending from a first position to a second position along said surface.

1 15. The prosthesis of Claim 14, wherein said coating having said
2 preselected geometrical pattern is deposited at least partially within said channel.

1 16. The prosthesis of Claim 14, wherein said preselected geometrical
2 pattern is a continuous stream having a selected stream width.

1 17. The prosthesis of Claim 16, wherein said continuous stream starts at
2 a first selected position within said channel and ends at a second selected position
3 within said channel.

1 18. The prosthesis of Claim 16, wherein said stream width is equal to
2 said channel width.

1 19. The prosthesis of Claim 16, wherein said stream width is smaller
2 than said channel width.

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1 31. The prosthesis of Claim 30, wherein said bead diameter is equal to
2 said cavity diameter.

1 32. The prosthesis of Claim 30, wherein said bead diameter is smaller
2 than said cavity diameter.

1 33. The prosthesis of Claim 30, wherein said bead diameter is larger
2 than said cavity diameter.

1 34. The prosthesis of Claim 28, wherein said generally tubular structure
2 includes multiple cavities within said surface.

1 35. The prosthesis of Claim 34, wherein said preselected pattern is
2 deposited at least partially within each of said multiple cavities.

1 36. The prosthesis of Claim 34, wherein said preselected pattern is
2 deposited at least partially within some but not all of said multiple cavities.

1 37. The prosthesis of Claim 1, wherein said generally tubular structure
2 is a stent having a plurality of struts and wherein said coating having said
3 preselected geometrical pattern is deposited on at least a portion of at least one
4 strut of said plurality of struts.

1 38. The prosthesis of Claim 37, wherein said at least one strut of said
2 plurality of struts includes a channel formed into said at least one strut and has a
3 channel width, said channel extending from a first position to a second position
4 along said at least one strut, and wherein said coating having said preselected
5 geometrical pattern is deposited at least partially within said channel.

1 39. The prosthesis of Claim 37, wherein said at least one strut of said
2 plurality of struts includes a cavity formed into said at least one strut and has a
3 cavity diameter and wherein said coating having said preselected geometrical
4 pattern is deposited at least partially within said cavity.

1 40. The prosthesis of Claim 37, wherein said preselected geometrical
2 pattern is repeated on a single strut of said stent.

1 41. The prosthesis of Claim 37, wherein said preselected geometrical
2 pattern is repeated on more than one strut of said stent.

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1 42. The prosthesis of Claim 1, wherein said coating comprises at least
2 one polymer.

1 43. The prosthesis of Claim 42, wherein said coating additionally
2 comprises at least one therapeutic substance.

1 44. The prosthesis of Claim 1, wherein said coating comprises at least
2 one therapeutic substance.

1 45. The prosthesis of Claim 1, wherein said coating is a first coating,
2 said prosthesis additionally comprising a second coating, wherein said second
3 coating has a second preselected geometrical pattern.

1 46. The prosthesis of Claim 45, wherein said first coating is in contact
2 with said second coating in at least one location.

1 47. The prosthesis of Claim 46, wherein said second coating covers at
2 least a portion of said first coating.

1 48. The prosthesis of Claim 45, further comprising:
2 a channel formed in the generally tubular structure, wherein said
3 first coating is deposited within the channel and said second coating is
4 deposited to at least partially cover said first coating within said channel.

1 49. The prosthesis of Claim 45, further comprising:
2 a cavity formed in the generally tubular structure, wherein said first
3 coating is deposited within the cavity and said second coating is deposited
4 to at least partially cover said first coating within said cavity.

1 50. The prosthesis of Claim 45, further comprising:
2 a channel formed in the generally tubular structure, wherein said
3 first coating and said second coating are deposited within the channel.

1 51. The prosthesis of Claim 45, further comprising:
2 a channel formed in the generally tubular structure, wherein said
3 first coating is deposited at least partially within the channel and said
4 second coating is deposited outside of said channel.

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1 52. The prosthesis of Claim 45, further comprising:
2 a plurality of cavities formed in the generally tubular structure
3 including a first group of cavities and a second group of cavities, wherein
4 said first coating is deposited at least partially within said first group of
5 cavities and said second coating is deposited at least partially within said
6 second group of cavities.

1 53. The prosthesis of Claim 45, further comprising:
2 a plurality of cavities formed in the generally tubular structure
3 including a first group of cavities and a second group of cavities, wherein
4 said first coating is deposited at least partially within said first group of
5 cavities and said second coating is deposited at least partially within said
6 second group of cavities, said first group of cavities and said second group
7 of cavities being distributed within a same region of the prosthesis.

1 54. The prosthesis of Claim 45, further comprising:
2 a plurality of cavities formed in the generally tubular structure
3 including a first group of cavities distributed within a first contiguous
4 region of said tubular structure and a second group of cavities distributed
5 within a second contiguous region of said tubular structure, wherein said
6 first coating is deposited at least partially within said first group of cavities
7 and said second coating is deposited at least partially within said second
8 group of cavities.

1 55. The prosthesis of Claim 45, further comprising:
2 a plurality of struts forming the generally tubular structure including
3 a first group of struts and a second group of struts; and
4 a plurality of cavities formed into said struts of the generally tubular
5 structure, wherein said first coating is deposited in cavities formed into said
6 first group of struts and said second coating is deposited in cavities formed
7 into said second group of struts.

1 56. The prosthesis of Claim 45, further comprising:
2 a plurality of struts forming the generally tubular structure, said
3 struts including:

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4 a plurality of links, a link forming a coupling between struts;
5 and
6 a plurality of arms, at least one arm extending from a link
7 coupling said struts; and
8 a plurality of cavities formed into said strut arms and said strut
9 links, wherein said first coating is deposited in cavities formed into said
10 strut arms and said second coating is deposited in cavities formed into said
11 strut links.

1 57. The prosthesis of Claim 45, wherein said first coating does not
2 make contact with said second coating.

1 58. The prosthesis of Claim 45, wherein said second coating comprises
2 at least one polymer.

1 59. The prosthesis of Claim 58, wherein said second coating
2 additionally comprises at least one therapeutic substance.

1 60. The prosthesis of Claim 45, wherein said second coating comprises
2 at least one therapeutic substance.

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